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RESEARCH ARTICLE

Exploring landowners' perceptions, motivations and needs for voluntary conservation in a cultural landscape

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Abstract

1. While efforts to reverse the current global environmental crisis increase, we are still experiencing unprecedented rates of species' extinctions. Traditional cultural landscapes can potentially play an important role for biodiversity conservation globally. However, these landscapes are threatened by pressures from global to local socio-economic drivers of change. Many cultural landscapes across the world occur on private land where landowners' environmental stewardship can help support nature conservation.
2. In this study, we applied a place-based collaborative approach to understand the main aspects underlying landowners' relationship with nature, their perceptions of the local social–ecological context and their vision of a desired future to identify the constraints and opportunities to support voluntary private land conservation. The study was conducted in Uruguay, in a traditional cattle ranching cultural landscape, which is a national priority area for the conservation of biodiversity. In Uruguay, approximately 96% of the land is privately owned, while the National System of Protected Areas covers only ~1% of the land.
3. Our results revealed that landowners had a close relationship with nature and considered themselves and their neighbours as local environmental stewards. Landowners were well aware of the importance of nature contributions to their livelihood and lifestyle and were concerned that rural exodus to urban areas and shrubland encroachment would negatively impact the social–ecological context they value and depend upon. Main needs of landowners to support biodiversity conservation were not primarily motivated by economic interests, but more related to the need for support that could enhance land management and social cohesion.

4. Biodiversity conservation goals in this cultural landscape cannot be pursued in isolation from social and rural development goals. Addressing local needs based on already existing links between nature's contributions and people might help support biodiversity conservation in the area. Failing to understand the context and to recognize locally perceived problems could increase the risk of voluntary conservation failure. Our approach and lessons learned can provide insights to actionable research in other cultural landscapes globally.

KEYWORDS

collaborative approach, conservation actions, cultural landscapes, environmental stewardship, nature contributions, rural development, social–ecological system, voluntary private land conservation

1 | INTRODUCTION

Humanity depends on nature's contributions for life support and development in complex ways and at different scales, from local to global (Díaz et al., 2019; Fischer et al., 2015; McLaughlin, 2018; Rockström et al., 2009). However, we are currently facing an unprecedented global environmental crisis that threatens biodiversity and, consequently, human well-being (Cardinale et al., 2012; Ceballos et al., 2015; Díaz et al., 2019). Despite global efforts to reverse this crisis, many indicators suggest we are still far from changing the main global trajectory towards sustainability (Díaz et al., 2019). Even though protected areas have expanded rapidly over the last decades to meet international and national policy obligations (e.g. to cover 17% of land globally by 2020; Watson et al., 2016), their locations have not always been optimal for protecting biodiversity and many still remain 'paper' parks (Di Minin & Toivonen, 2015). Importantly, from the perspective of this study, their establishment has often focussed on locations that minimize conflict with agriculturally suitable lands (Venter et al., 2018).

Traditional cultural landscapes were found to be important for both people and nature (Fagerholm et al., 2020; Fischer, Hartel, & Kuemmerle, 2012; Plieninger, Höchtl, & Spek, 2006; Strohbach, Kohler, Dauber, & Klimek, 2015). In these landscapes, people relate to nature and perceive its contributions (i.e. positive and negative) in different ways according to worldviews, values, and different cultural and institutional contexts (Díaz et al., 2018; Pascual et al., 2017). These relationships are usually complex and extend beyond intrinsic values (i.e. the value of nature itself, independent of people) and instrumental values (i.e. what nature provides for us), to include relational values (preferences, principles and virtues about human–nature relationships; Chan et al., 2016; Jax et al., 2018; Muradian & Pascual, 2018).

In cultural landscapes, rural communities and biodiversity have evolved as tightly coupled social–ecological systems where local people play a key role in biodiversity conservation through environmental stewardship, caring for and responsibly managing the environment according to diverse motivations and capacities (Bennett et al., 2018; Raymond et al., 2016). In this context, sense of place, defined as the meanings and attachment to a setting held by an individual or group (Tuan, 1977), has been increasingly shown to play an important role in people's motivations for environmental stewardship and adaptation to environmental changes (Chapin & Knapp, 2015; Masterson, Enqvist, Stedman, & Tengö, 2019; Masterson et al., 2017; Raymond, Brown, & Robinson, 2011; Raymond et al., 2016).

However, these cultural landscapes are threatened by pressures from local and global socio-economic drivers of change, which might result in the abandonment of traditional farming practices and the establishment of intensive monocultures (Díaz et al., 2019; Fagerholm et al., 2020; Fischer et al., 2012). These, in turn, might trigger land-use change and rural exodus, which can have negative consequences on both humans (e.g. negative impacts on social cohesion, local economies, access to education; Camarero & Oliva, 2019; McManus et al., 2012; Measham, Darbas, Williams, & Taylor, 2012) and biodiversity (e.g. increasing risk of local extinction from habitat loss; Auffret, Kimberley, Plue, & Waldén, 2018; Cousins, Auffret, Lindgren, & Tränk, 2015; Newbold et al., 2015; Staude et al., 2018). These challenges and the ways they might affect and threaten environmental stewardships at the local level are also manifested, perceived and addressed differently according to ecological, cultural and economic context (Masterson et al., 2019; West et al., 2018; Wilbanks, 2015). Therefore, understanding how people relate to places and nature in diverse cultural landscapes is key to identify sustainable development pathways that could integrate sustainable agriculture and biodiversity conservation (Chan et al., 2016; Gooden, 2019; MacGillivray & Franklin, 2015; Masterson et al., 2019; Pascual et al., 2017; West et al., 2018).

As many cultural landscapes across the world occur on private land, private land conservation policies are increasingly being developed and implemented from national to local levels to foster landowners' environmental stewardship and increase the impact of conservation (Bingham et al., 2017; Gooden, 2019; IUCN-World Commission on Protected Areas Task Force, 2019; Kamal, Grodzińska-Jurczak, & Brown, 2015; Mitchell, Fitzsimons, Stevens, & Wright, 2018). These policies range from involuntary policies, which might include imposed land-use regulations, to voluntary policies, which can include financial and capacity building instruments

(Casey, Vickerman, Hummon, & Bruce, 2006; Disselhoff, 2015; Kamal et al., 2015). Overall, the success of these policies depends on designing and implementing a suite of different policy instruments according to geographical contexts and to the needs, values and capabilities of different stakeholders (Cooke, Langford, Gordon, & Bekessy, 2012; Cortés-Capano, Toivonen, Soutullo, & Di Minin, 2019; Selinske et al., 2017). While researchers and policy-makers are becoming increasingly aware of the importance of getting in-depth understanding of landowners' perceptions, relational values, motivations and needs (Bennett, 2016; Cetas & Yasué, 2016; Chan et al., 2016; Selinske, Coetzee, Purnell, Knight, & Lombard, 2015), these approaches are still not commonly used to inform policy-making at the early design stage.

In spite of important recent theoretical and conceptual advances in stewardship literature (e.g. Bennett et al., 2018; Cockburn, Cundill, Shackleton, & Rouget, 2018; Enqvist et al., 2018; Masterson et al., 2019), there is a clear need to further develop the links between theory and practice (Cockburn et al., 2018). In this study, we contribute to filling this gap with empirical data from one of the most impacted and least protected biomes in the world, the 'Río de la Plata' temperate grasslands ecoregion (Bilenca & Miñarro, 2004; Henwood, 2010; Hoekstra, Boucher, Ricketts, & Roberts, 2005; Jacobson, Riggio, Tait, & Baillie, 2019; Overbeck et al., 2007). In addition, we contribute to filling a geographical gap in private land conservation literature as South America is currently underrepresented in published studies (Cortés-Capano et al., 2019). Specifically, our goal is to understand landowners' relationship with nature, their perceptions of the main problems affecting the area and their vision of a desired future to identify the constraints and opportunities to support voluntary private land conservation and foster environmental stewardship in a traditional cattle ranching area. This cultural landscape was identified as a priority area for the conservation of biodiversity in Uruguay (Di Minin et al., 2017). In Uruguay, 96% of the land is privately owned and the National System of Protected Areas (SNAP) covers only ~1% of the land (Di Minin et al., 2017). As a signatory to the CBD and with no resources for acquiring land for conservation, Uruguay recognizes the importance of voluntary private land conservation to help meet national and international biodiversity conservation targets (Law No. 19.535, Article 163, October 2017, https://www.impo.com.uy/bases/leyes-originales/19535-2017/163).

2 | METHODS

2.1 | Study area

At the national level, Uruguay is still predominantly covered by native grasslands (~60% of the country; Altesor, López-Mársico, & Paruelo, 2019). These biodiversity-rich 'old-growth' grasslands have evolved as cultural landscapes, shaped by human activities, such as fire management, since the Holocene (Behling, Pillar, Müller, & Overbeck, 2007; Kaal, Gianotti, del Puerto, Criado-Boado, & Rivas, 2019; Veldman et al., 2015) and have been allocated to traditional extensive cattle ranching production since European colonization. Cattle ranching, predominantly on native grasslands, is one of the main economic activities in Uruguay (MGAP-DIEA, 2019). However, the area occupied by native grasslands has decreased at least 23% between 1961 and 2011 (OPP, 2015) and still continues to decrease (Altesor et al., 2019). The main causes of this decline are the expansion of commercial forestry, crops and pastures (Altesor et al., 2019; Modernel et al., 2016).

The study was conducted in the 'Quebradas del Norte' region, located in North Eastern Uruguay (Figure 1). The area of study has been identified at the national (Di Minin et al., 2017) and international (e.g. part of the 'Bioma Pampa-Quebradas del Norte' Biosphere Reserve, UNESCO, 2015, and part of the Important Bird Area 'North Quebradas and grasslands', BirdLife International, 2019) level as a priority area for biodiversity, ecosystem services and cultural heritage conservation. Specifically, we focused on an area called 'Cuchilla de Laureles y Cañas', which covers approximately 62,500 ha in the Departments of Tacuarembó and Rivera. The area includes diverse ecosystems, predominantly native grasslands (~60%), but also sub-tropical forests and shrublands immersed in a rolling topography characterized by hills, valleys, rivers and waterfalls (Figure 1d; DINAMA, 2009). In terms of species richness, the area hosts >600 plant species and >200 bird species. The area has also developed a unique culture over centuries, including a distinctive dialect related to the Uruguayan-Brazilian border territories ('Uruguayan Fronterizo'; Lipski, 2009), folk music and gaucho traditions and celebrations (e.g. Fiesta de la Patria Gaucha). While no official statistics exist for the study area, local stakeholders have consistently mentioned that approximately 70 families currently live in this rural area. Approximately 80% of the properties are smaller than 500 ha and >70% of the landowners permanently live there (Santos, 2008). The main land-use in the area is traditional cattle and sheep ranching on native grasslands. Recently, some ecotourism initiatives were also started to complement cattle ranching with other sources of income. These initiatives provide tourists with opportunities to experience local rural culture (e.g. traditional food and music and horse riding) and nature (especially native forests). However, commercial forestry has increased in the last decades and is expected to continue increasing in the future, representing one of the main threats to biodiversity conservation in the area (DINAMA, 2009).

2.2 | Methodological approach

To address local social–ecological complexity, we engaged diverse stakeholders in the research process (e.g. decision-makers, managers, landowners, Beier, Hansen, Helbrecht, & Behar, 2017; Cortés-Capano et al., 2019; Reed et al., 2009; see stakeholder analysis section for more details). Specifically, through formal and informal interviews, meetings and project presentations, we collaboratively (a) refined the overall scope of the study; (b) refined research questions and methods; (c) refined the geographical boundaries of the

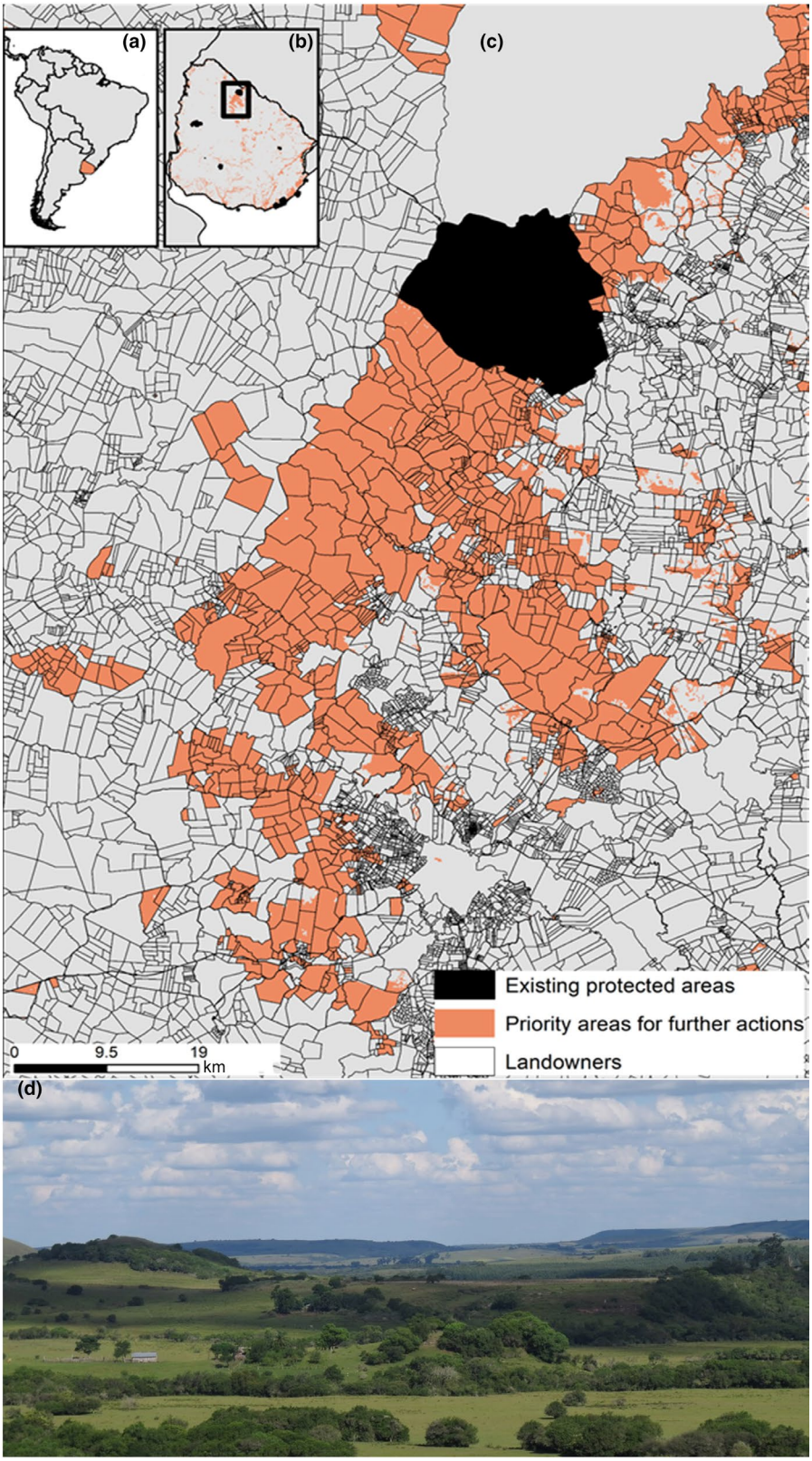

FIGURE 1 Map of the study area. (a) Location of Uruguay in South America; (b) location of the study area in Uruguay; (c) private landowners properties identified as priorities for the conservation of biodiversity and ecosystem services in Uruguay (figure modified from Di Minin et al., 2017); (d) picture of the study area cultural landscape (credit: Gonzalo Cortés Capano). Our interviews were conducted in a sub-sample of those conservation priority properties

study area; (d) discussed the validity of our interpretations and (e) discussed the implications of the results for future policy-making.

Our research followed a constructionist epistemological position (Creswell, 2014; Moon & Blackman, 2014). This position assumes that meaning is created as people engage with and interpret the world. Therefore, different individuals construct meaning in different ways according to their cultural, historical and personal perspectives and experiences (Creswell, 2014). This approach aims to be inclusive of individuals or groups' values, in relation to specific qualities or features in the environment, including place-specific ones

(Chan et al., 2016; Masterson et al., 2019). As we were interested in understanding local perceptions, we followed the definition of perceptions by Bennett (2016) to be 'the way an individual observes, understands, interprets, and evaluates a referent object, action, experience, individual, policy, or outcome'.

Our design followed continuous critical evaluations to respect the well-being and safeguard the dignity and autonomy of all participants. We followed recommendations from the voluntary ethics code developed by the Uruguayan Association of Social and cultural Anthropology (Asociación Uruguaya de Antropología Social y Cultural, 2013) to ensure that the design would be culturally appropriate and would meet ethical requirements. Participation in all the instances of this study was voluntary. Informed consent was granted by all participants after adequately understanding the research aims, the institutions promoting and funding the research, how their data would be used and their rights as participants. It was possible for participants to withdraw from the study at any time and that it would not affect them in any way. A letter signed by the researchers conducting the interviews was provided to all participants including a summary of the research and the researchers' contact details in case the participants would like to express concerns or to withdraw from the study. The anonymity and confidentiality of all participants were strictly preserved by not revealing their names, identity and location of their properties at any stage of the research process (i.e. data collection, analysis and reporting of the main findings). Discussions were audio-recorded only after asking for expressed permission by the interviewee. It was stated that every opinion was valid (i.e. there are no good or bad answers) as the aim of the study was to understand participants' perceptions, experiences and reflexions. Data were anonymized and safely stored in a password protected environment under the control of the leading researcher. Raw data will be destroyed after publication. All analyses were conducted by the lead researcher in accordance with the other researchers. Finally, findings were summarized and presented during workshops at the local and national levels to divulgate the results and to receive feedback. Overall, by following these ethical criteria, our approach complied with the ethical principles of research in the human sciences both in Finland (Finnish National Board on Research Integrity, 2019) and Uruguay (Asociación Uruguaya de Antropología Social y Cultural, 2013).

2.3 | Stakeholder analysis

Stakeholders are the parties whose interests may be affected by an action or who can influence a process (e.g. policy-making or implementation), using means at their disposal, such as power, legitimacy, and existing ties of collaboration and conflict (Reed et al., 2009). To adequately engage stakeholders in the study area, we identified and characterized them according to their legitimacy, power, interests and relationships following Chevalier and Buckles (2008). To do this, we first identified a diverse group of key informants from the government, local community and non-governmental organizations working in the area. We then followed an iterative process comprising scoping interviews, focus groups and follow-up interviews with these key informants to identify and characterize other local stakeholders (e.g. landowners, municipal authorities, private companies and businesses) in the area (Reed et al., 2009). The results of this process were then used to understand the local context and to inform sampling design (i.e. aiming to represent a diverse set of contexts and perspectives).

2.4 | Interviews

To get in-depth understanding on landowners' perceptions and to facilitate the emergence of unexpected insights, we conducted in-depth qualitative interviews (Newing, Eagle, Puri, & Watson, 2011). Topics discussed in the interviews were identified following a literature review and consultation with different stakeholders (e.g. decision-makers, landowners) to cover important aspects enabling landowners' environmental stewardship and to facilitate the identification of appropriate policy instruments aligned with their motivations and needs (Table 1; e.g. Chan et al., 2016; Enqvist et al., 2018; Hausmann, Slotow, Burns, & Di Minin, 2016; Masterson et al., 2019; Pascual et al., 2017; West et al., 2018). While the interviews were flexible to follow landowners' interests, the main topics discussed covered their sense of place, their relationship with nature, the main problems perceived to be affecting the area and their vision for a desired future. As our approach was not based in any pre-conceived normative definition of nature conservation, we inquired about their perception to inform future culturally appropriate actions and avoid social conflicts (Crow & Baysha, 2013; Peterson, Russell, West, & Brosius, 2010).

The interviews were always conducted by the same team composed of three people. Before starting the interviews, we explained the aim and the scope of the study. We also explained that the results would be anonymous and confidential and that they would be used for research purposes and to potentially inform the development of future policies for the area. In addition, we stated our position as researchers collaborating with the government and other institutions for this purpose (Singh et al., 2019). We expressed that every opinion was valid (i.e. there are no good or bad answers) since we were genuinely interested in understanding their perceptions, experiences and reflexions. Discussions were recorded only after asking for expressed permission by the interviewee. Interviews followed a flexible conversational approach (Moon, Adams, & Cooke, 2019) and lasted between 90 and 180 min. All interviews were conducted face-to-face in Spanish.

2.5 | Sampling design

Our design combined non-probabilistic purposive sampling informed by stakeholders analysis (Newing et al., 2011; Palinkas et al., 2015) and snowball sampling informed by asking interviewees to recommend participants who would have different views to them (Moon, Brewer, Januchowski-hartley, Adams, & Blackman, 2016; Newing et al., 2011). This overall strategy enabled us to interview

TABLE 1 Main topics discussed in the in-depth interviews with landowners in the cultural landscape of 'Cuchilla de Laureles y Cañas', Uruguay

Topic	Example questions	Supporting references
Demographic information	*Household composition, main source of income, property size*	Newing et al. (2011)
Sense of place	*What does it mean for you to live in the area?* *What would you miss the most if you had to leave the area?*	Gooden (2019), Hausmann et al. (2016), MacGillivray and Franklin (2015) and Masterson et al. (2019)
Relationship with nature	How do you feel when you are in nature? What are the main benefits and conflicts with nature?	Chan et al. (2016), Chapman et al. (2019), Díaz et al. (2015), Jax et al. (2018) and West et al. (2018)
Problems perceived to be affecting the area	*What do you think are the main problems in the area?*	Balvanera et al. (2017), Cockburn et al. (2018), Cooke et al. (2012) and Knight et al. (2019)
Vision for a desired future	*How would you like this place to be in the future?*	Matschoss, Repo, and Timonen (2019), Palomo, Martín-López, López-Santiago, and Montes (2011) and Sandström et al. (2016)
Main needs	*What would be needed for the area to move in the desired direction?*	Cetas and Yasué (2016), Moon et al. (2019) and Moon and Cocklin (2011)
Nature conservation definition	*Have you ever heard about nature conservation?* *What does it mean for you?*	Crow and Baysha (2013) and Peterson et al. (2010)

landowners covering a broad spectrum of contexts (e.g. property size, power, interests), to get a comprehensive understanding of how eventual policies could have a positive or negative impact in the area.

Since we aimed at getting in-depth understanding rather than representing a broader landowners population, our sampling size was estimated following the qualitative saturation principle (Newing et al., 2011). In practice, interviewee recruitment concluded when collecting more data revealed no further insights or understanding on the topics of interest (Creswell, 2014; Moon et al., 2016).

2.6 | Data analysis and validation

The interviews were analysed following constructivist analytic methods (Charmaz, 2006), iteratively integrating both inductive (i.e. grounded in the views and experiences of the participants) and deductive (i.e. inquiring about topics related to existing theoretical frameworks, such as sense of place and stewardship) approaches (Gooden, 2019; Moon et al., 2016). This approach was agreed as suitable with different stakeholders since there were no pre-existing theories regarding people's perceptions on the research topics for this area. Our analysis and coding mainly relied on audio transcriptions, and on field notes, memos and informal conversation when interviewees did not give permission to record audio.

Finally, we conducted two workshop validation exercises to discuss our main findings with different stakeholders at the local and national levels. First, to engage the local landowners' community we presented and discussed our interpretation of the results and suggested policy instruments in a locally relevant participatory platform (Rural Development Board, Ministry of Livestock, Agriculture and Fisheries; MGAP). After adjusting and improving the results with their feedback, we presented and discussed them with different stakeholders from the public, private and civil society sectors at the national level (National Advisory Commission for the National System of Protected Areas, Ministry of Housing, Land-use planning and Environment; MOVTMA). This process helped us increase our results' validity (i.e. appropriateness of the interpretation of the results based on the evidence, research design and social context) and credibility (i.e. the degree to which the research represents the actual meanings of the research participants), which are key aspects of quality in qualitative research (Moon et al., 2016).

3 | RESULTS

3.1 | General descriptive information

We conducted 11 households' interviews, directly involving 16 people (eight women and eight men). In four interviews, two or three members of the family engaged in the conversations. Households were composed of between two and five family members. Ages of interviewees ranged between 20 and 70 years of age, the 40–50 range being the most frequent age class. All interviewees except one lived permanently in the area. Most of the interviewees (7 out of 11 families) mentioned that their family had been living and producing in the area for at least four generations, while two families were first generation in the area.

Property size ranged from 24 to 2,200 ha, covering a total area of approximately 5,500 ha. More than 95% of the properties were

covered by native ecosystems (i.e. grasslands, shrublands and native forests). Traditional cattle ranching on native grasslands was the main land-use, representing in all cases the main source of income for the families. Alternative sources of income included working for other landowners in the area, ecotourism initiatives, leasing part of their properties for other landowners to produce on them, working as rural property agent and, to a lesser extent, selling crafts made of local materials (e.g. food, leather, wool). According to our sampling design (e.g. stakeholders analysis, validation workshops), the characteristics of the interviewees adequately reflect the characteristics of the broader local landowners population.

3.2 | Sense of place perceptions

All landowners expressed that place is strongly linked to their personal identity. The main shared components associated with sense of place were as follows: (a) the appreciation of the area's nature and biodiversity (both ecosystems and species), (b) cattle ranching production and rural work (e.g. managing cattle with horses and shepherd dogs, animal husbandry), (c) good relationship and solidarity between neighbours, (d) the perception of historic legacy from their ancestors and (e) the traditional lifestyle (e.g. working in nature, following natural day/night rhythms, being independent from urban services and lifestyle).

They also expressed that singular landscape features such as hills, rivers and forests have historically shaped their ways of relating to the environment, consolidating local knowledge and productive practices that have been transferred from generation to generation. Some of them also mentioned that they perceive that new relationships with the place are evolving mostly in relation to the development of rural and ecotourism initiatives. These initiatives have prompted the appreciation of different aspects of the place in a novel way, such as bird species richness (in relation to birdwatching initiatives), trails in the forests for hiking and local music and gastronomy. Even though most landowners mentioned aspects related to their properties, the main components of their sense of place were placed at the landscape level.

3.3 | Relationship with nature

Most landowners mentioned that they found it difficult to reflect about their relationship with nature because it is part of their everyday experience and it usually is given for granted. However, they found it interesting and helpful to raise self-awareness about their experiences and benefits and conflicts they perceive from nature.

3.3.1 | Beneficial contributions from nature: Benefits

Landowners mentioned that they appreciate and enjoy experiencing nature while working on cattle ranching activities but also nature-based activities such as fishing, hunting, birdwatching and camping. All landowners mentioned that nature is the main basis for their production, lifestyle and well-being. 'In my opinion, nature provides everything we need to live in the countryside'. According to their view, the main perceived benefits from nature were provided by native grasslands related to traditional cattle ranching activities. They mentioned that, even though average productivity might be lower than what they would get from using exotic commercial pastures, native grasslands (locally called 'campo natural') provide very good quality pastures for cattle, stability in performance and resilience to extreme climatic events (e.g. severe droughts). 'Native grasslands are Uruguay's petrol'. Regarding benefits perceived from shrublands, all landowners mentioned that, as long as they do not cover extensive areas, they are important for rainwater retention, favour nutritious grass species growth (e.g. providing shade and protection from cattle) and they represent a reservoir food source for cattle at times of severe droughts. Concerning native forests, they mentioned that they provide shade and shelter for cattle, both buffering extreme winter and summer temperatures, firewood and timber, and that they are key for providing and regulating water quality and quantity.

Some landowners also mentioned that nature in the area provides opportunities for developing ecotourism initiatives, especially related to rare or endangered birds (e.g. Buff-fronted owl *Aegolius harrisii*, Chestnut seedeater *Sporophila cinnamomea*) and mammals (e.g. Hairy dwarf porcupine *Sphiggurus spinosus*, South American coati *Nasua nasua*), subtropical forests and iconic landmarks such as hills and waterfalls. Finally, some landowners mentioned that nature also provides the opportunity for them to sustainably hunt native species for domestic consumption, mainly Capybara *Hydrochoerus hydrochaeris*, Nine-banded Armadillo *Dasypus novemcinctus* and the Dusky-legged Guan *Penelope obscura*.

3.3.2 | Detrimental contributions from nature: Conflicts

While all landowners appreciated local nature, they also stressed that it generates important difficulties and conflicts with their productive activities, mainly with cattle ranching. They mentioned that one of the main difficulties is related to the topographic characteristics of the area (e.g. hilly areas, rivers), which represents important challenges for accessibility and cattle management (e.g. gathering cattle, accessing fresh water sources). While their traditional practices are to a certain level adapted to these difficulties, all landowners mentioned that the main conflict with nature in the area is the increasing shrubland and forest encroachment, particularly by a native shrub called Whitebrush *Aloysia gratissima*. According to their perception, this spiny shrub encroaches in thick patches, reducing the grazing area covered by native grasslands. This reduction affects negatively cattle stock, generating negative impacts both in their income and

in the remaining grasslands state, due to increasing overgrazing (i.e. increasing density in the remaining grazing areas). 'Landscape characteristics and forest encroachment represent important difficulties for cattle ranching production'. They also mentioned that there is no conclusive information on the factors explaining this encroachment. However, most landowners pointed to the recent reduction of sheep stock as one of the main causes since sheep usually grazed on the shrubs saplings, controlling their abundance.

They also mentioned the existence of human–wildlife conflict in the area. Even though some landowners mentioned that there is conflict between sheep ranching and native species (e.g. Crab-eating fox *Cerdocyon thous* and Southern crested caracara *Caracara plancus*), most of them expressed that native predators populations are low and do not represent a major problem for them. However, all landowners stressed the conflict with the exotic invasive wild boars *Sus scrofa* as one of the main problem affecting sheep stock and production. According to their perception, wild boars' populations are increasing in the area in the last decade, causing a significant increase in sheep killings.

3.4 | Perceptions of the main problems affecting the area

The main problems expressed by landowners were broadly related to productive and social dimensions (Figure 2). They explained that those dimensions are interrelated and both have impact in the local environment and biodiversity.

3.4.1 | Productive dimension

According to the landowners, increasing transformation of native grasslands to commercial forestry represented the most important change in the landscape. They mentioned that this land-use change negatively affects (a) their access to grazing areas since forestry occupies former cattle ranching areas, (b) their sense of place 'With these trees plantations it is not possible to see far as we were used to', 'there are some old houses where my family used to live that are now inside forestry plantations', (c) their health 'allergies have increased when all these pine trees flower and also when they use agrochemicals in the plantations' and (d) nature 'You see fewer birds than before, plus birds that were common before have now disappeared or became rare'. However, some landowners expressed that commercial forestry has also positive impacts since it provides job opportunities for local people and access to grazing areas for some landowners within forestry properties (e.g. leasing contracts with the companies).

In addition, all landowners expressed concerns towards the reduction of sheep stock as a productive and an environmental problem. While sheep farming was a traditional land-use in the area, rooted in their culture and contributing to the control of shrubland encroachment, both the market price instability and the impact of exotic wild boars (i.e. killing sheep) are causing this stock reduction. Other problems perceived by the landowners included: (a) challenges for developing ecotourism initiatives, both in terms of shortage of skilled workers and in terms of poor infrastructure to host tourists and (b) new challenges for improving cattle ranching production including the already mentioned shrubland and

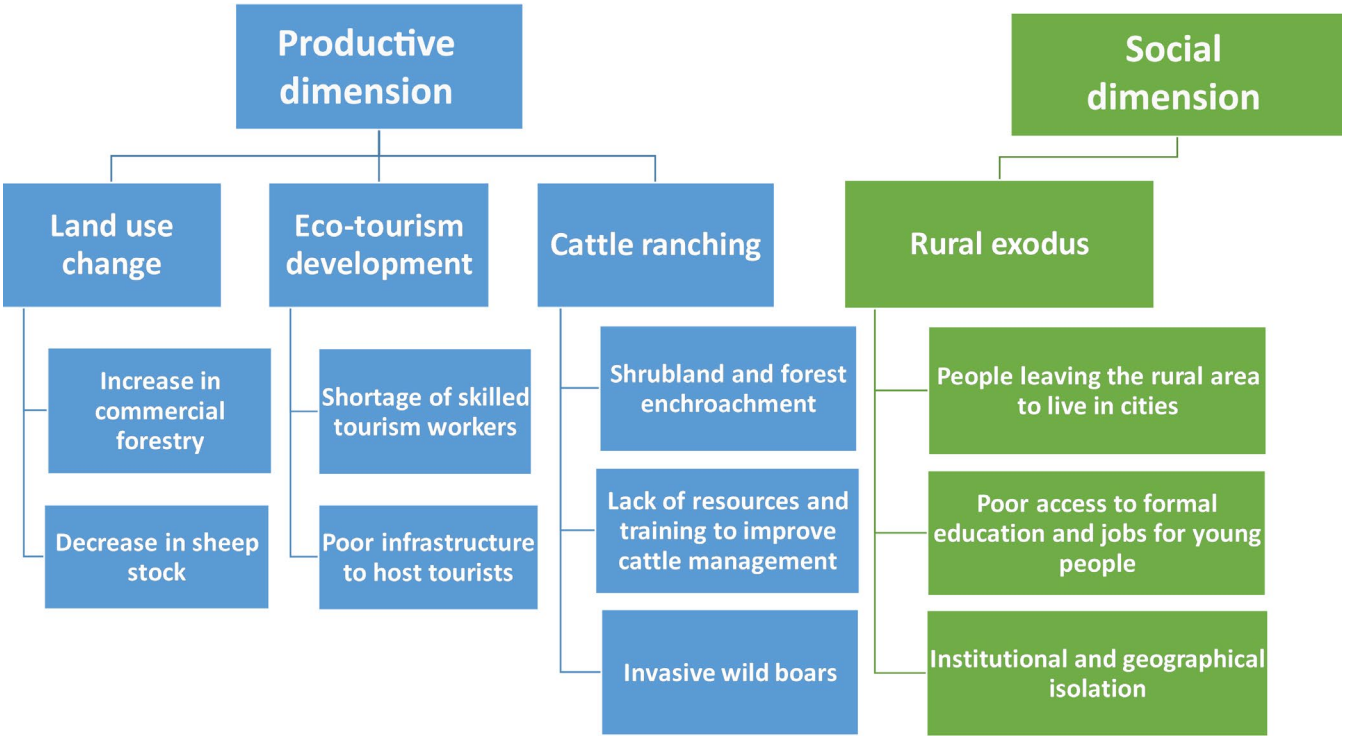

FIGURE 2 Main problems perceived by the landowners to be affecting the area. Problems were structured hierarchically to identify the main perceived dimensions, one related to production and the other one related to social aspects

forest encroachment and the increasing pressure from the invasive wild boars.

3.4.2 | Social dimension

On the social dimension, all landowners mentioned that the main problem in the area is the rural exodus, since people are increasingly leaving the rural area to live in towns or cities 'Many of our neighbours have left the area, each year there are fewer kids going to rural schools'. According to them, the exodus is driven by different factors, such as a decrease in income from traditional cattle ranching practices, poor access to rural high school education, and jobs for young people, and geographical (e.g. low accessibility) and institutional (e.g. low presence of formal institutions) isolation. According to their perception, rural exodus negatively affects other social dimensions such as the community capacity for self-organization (e.g. low participation in community activities) 'with fewer people it is increasingly difficult to get together to discuss about community issues and find solutions'. In addition, according to their perception, rural exodus also negatively affects the natural environment, by decreasing the number of people who would actively manage the properties 'with fewer farmers it is worse for nature, there is less management, less control for illegal hunting, and invasive species'. In addition, many of the landowners who leave the rural area sell their properties to forestry companies that replace native grasslands with commercial forestry.

3.5 | Landowners' visions for a desired future

All landowners covered social, cultural, productive and environmental dimensions in their visions for a desired future. The main elements of the visions included: (a) more people living in the area, producing and conserving nature, (b) ecotourism and production coexisting, (c) a community well aware of the importance of nature for their livelihood and well-being, (d) improved cattle ranching management based on their traditional practices that would allow them to be more competitive in the market while conserving native grasslands, (e) improved accessibility and connectivity (e.g. better roads, access to public transport and mobile phone signal), (f) better organized and informed community actively engaged in decision-making (e.g. Rural Development Boards) regarding development (e.g. improved access to education and beef production markets) in the area and (g) more education and job opportunities for young people. All of them mentioned that it would be important to create new collective spaces that would foster social cohesion and place attachment (e.g. folkloric celebrations, horse races). However, while landowners in our study area agreed on the main vision for the future, different households had specific preferences. While all landowners, for example, acknowledge the importance of ecotourism initiatives in the area, not all households would be interested in implementing them in their properties.

3.6 | Main landowners' needs

The main needs expressed by the landowners were broadly related to (a) receiving support to improve infrastructure, (b) enhancing knowledge management and building capacity and (c) strengthening social cohesion. While respondents emphasized different needs according to their personal contexts and interests, they found all needs to be important and complementary.

3.6.1 | Support to improve infrastructure

Most landowners mentioned needs related to improving infrastructure, both to enhance cattle management and productivity (e.g. building new fences) and to develop ecotourism initiatives (e.g. improving accommodation facilities for tourists). In this sense, some of the landowners mentioned that they would need financial support to implement these actions (e.g. cost-share incentives, tax exceptions). However, other landowners mentioned that they prefer non-financial support from institutions: 'I prefer to do things with our own resources, at our own pace. Support is always welcome, but not financial since you never know what they would ask you in exchange and you usually get trapped and loose autonomy'.

3.6.2 | Knowledge management and building capacity

These needs are mostly related to getting technical advice from practitioners (e.g. agronomists, veterinaries) and access to trainings and capacity building to improve cattle ranching management practices and to develop local skills to work on ecotourism. Some landowners also mentioned a clear need to co-create knowledge with academic researchers to identify solutions to local problems (e.g. how to better manage and control shrubland and forest encroachment). In addition, they mentioned the need to develop remote rural education programmes to provide young people with opportunities to study without leaving the rural area.

3.6.3 | Strengthening social cohesion

Finally, some landowners also mentioned needs related to strengthening and enhancing social cohesion and collective action. Specifically, they mentioned the need to get 'professional' support to strengthen existing local participation spaces and to create new ones according to young people's interests and needs. In this sense, they identified the need to enhance collective control of wild boars as well as collective control of wildlife poaching and sheep rusting in their properties. They also mentioned that it would be important for them to share innovative cattle ranching practices and experiences that would benefit both their income and the environment.

3.7 | Landowners' perception about the meaning of nature conservation

Landowners' meanings of conservation were diverse and complementary. Conservation is conceived from a social–ecological perspective, where the social and ecological dimensions are tightly coupled in this cultural landscape, mainly through cattle ranching production and recently through the development of ecotourism initiatives. 'Conservation is linked to production and to people living in the countryside'. All of them related nature conservation definitions to the importance of nature contributions to their well-being and livelihood, 'We conserve nature because we depend on it to make a living'. However, they expressed that conservation in the area should aim to maximize beneficial contributions from nature while controlling detrimental ones, especially controlling shrubland and forest encroachment. All landowners expressed that both them and their neighbours consider themselves stewards of local nature and culture. However, some of them made a clear distinction between being stewards and being environmentalists, 'I take care of nature but, I am not an environmentalist'. In this sense, all of them mentioned that top down approaches based on regulations and impositions would fail in the area since they generally do not take into account their perspectives, traditional practices and knowledge that have historically shaped the landscape for generations. However, all landowners expressed their willingness to get involved in eventual future environmental stewardship initiatives and actions if they would provide support to meet their needs to advance into their vision for a desired future, respecting their values and autonomy.

4 | DISCUSSION

While most studies on private land conservation policies focus on landowners' perceptions and preferences for already existing programmes (e.g. Cooke & Corbo-Perkins, 2018; Gooden, 2019; Selinske et al., 2015; Sorice et al., 2013), this study followed a place-based approach (Balvanera et al., 2017) to assess the feasibility and identify constraints and opportunities to foster environmental stewardship in a priority area for the conservation of biodiversity on private land. In addition, our collaborative approach provided opportunities to integrate different perspectives and facilitate dialogue, learning and trust between stakeholders (de Vente, Reed, Stringer, Valente, & Newig, 2016). Specifically, our results revealed that landowners in the area agreed on a common vision for the future, while expressing specific yet complementary needs. Hence, designing a diverse set of context-specific policy instruments would be key to foster local landowners' stewardship (Cooke et al., 2012; Selinske et al., 2017) while integrating people's and nature's needs (Figure 3).

Our main results revealed that, in this cultural landscape, landowners' management decisions and their main needs were not primarily motivated by economic interests but also by a diverse set of values such as their sense of place, their relationship with nature and their traditional cattle ranching culture. In addition, we found that landowners in our study area already consider themselves and their neighbours as stewards of local nature. In line with the recent examinations of human nature relationships in social–ecological systems literature (Díaz et al., 2018; Enqvist et al., 2018; Jax et al., 2018; Pascual et al., 2017; West et al., 2018), we found that landowners' perceptions of local environmental stewardship were strongly mediated by their perceived benefits and conflicts with nature and their sense of place. Similar to the findings by Raymond et al. (2016), stakeholders showed an holistic understanding of stewardship, recognizing complex interdependencies between food production and ecological systems. In this sense, traditional cattle ranching on native grasslands was a core element of their stewardship, underlying self-identity, social cohesion and daily connections with nature (Díaz et al., 2018; Hall, 2019; IPBES, 2018; Modernel et al., 2016; Pascual et al., 2017). These results

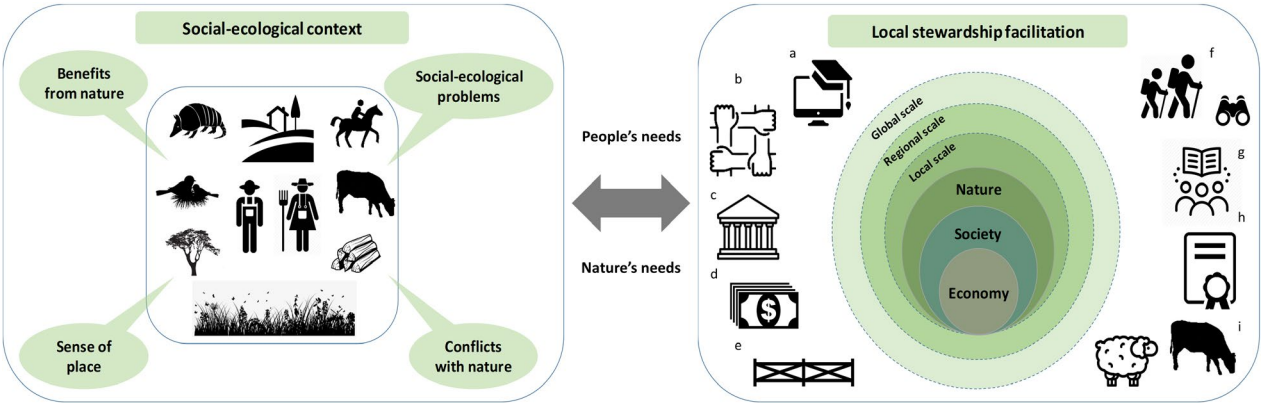

FIGURE 3 Conceptual model of our collaborative place-based approach. The approach is based on understanding landowners' perceptions on the main dimensions of the local social ecological context (sense of place, benefit and conflicts with nature and social–ecological problems) and their vision for the future to identify a set of policy instruments, based on people's and nature's needs, that would facilitate local stewardship and sustainable production in the long term. Some of the policy instruments that could potentially be implemented in our study area are as follows: (a) access to remote secondary education programmes and capacity building; (b) landowners networks; (c) technical assistance from interdisciplinary teams; (d and e) cost-share incentives to assist with the implementation of conservation actions; (f) support to develop ecotourism initiatives; (g) integration of different knowledge systems (e.g. local, academic) to find solutions to local problems; (h and i) support to develop sustainable production and ecotourism certification schemes

suggest that traditional conservation approaches failing to recognize existing links between people and nature (e.g. increasing regulations or buying property rights) are unlikely to provide long-term conservation outcomes in cultural landscapes (Bohnet & Konold, 2015; Fischer et al., 2012; Moon et al., 2019). Instead, designing policies that would support existing local environmental stewardship, aligned with landowners' motivations and needs, offer unique opportunities to meet socio-economic and ecological goals in the long term (Cetas & Yasué, 2016; Rueda, Velez, Moros, & Rodriguez, 2019).

Developing a shared understanding of the locally perceived problems and threats is key to support and further incentivize local stewardship in cultural landscapes (Bennett et al., 2018; Enqvist et al., 2018; Moon et al., 2019). In this sense, our in-depth approach helped reveal that rural exodus and shrubland and forest encroachment were among the main pressures that threaten the long-term economic, social and environmental sustainability. Far from being a local problem, rural exodus is a complex global issue, causing the shrinkage of rural communities' economies and autonomy (Li, Westlund, & Liu, 2019). Although in some cases it can lead to the restoration of degraded ecosystems and rewilding (see e.g. Aide & Grau, 2004; Pereira & Navarro, 2015), rural exodus can lead to the collapse of traditional systems with detrimental effects on biodiversity (e.g. Meyerson, Merino, & Durand, 2007; Parry, Peres, Day, & Amaral, 2010; Robson & Berkes, 2011; Uriarte et al., 2012). To decrease farm abandonment and to mitigate land-use change (e.g. from native grasslands to commercial forestry (Ehrnström-Fuentes & Kröger, 2018), future actions should aim at supporting local rural development (e.g. novel ecotourism initiatives and improving traditional cattle management). In addition, as traditional cattle ranching in the region is key to support current management and local livelihoods (de Freitas, de Oliveira, & de Oliveira, 2019), actions should also address perceived threats from shrubland and forest encroachment, which cause the reduction of the grazing area (Garibotto Carton, Caballero, & Pereira Machin, 2017). This is particularly important as failing to recognize and address locally perceived problems could result in inadequate policies, lack of landowners' engagement and support, negatively affecting the effectiveness of voluntary conservation in the area (Bennett et al., 2019; Chapman, Satterfield, & Chan, 2019). According to the landowners, to identify effective conservation solutions, there is a need to increase collaboration among different stakeholders and to foster the integration of different knowledge systems (e.g. local and academic; Paloniemi et al., 2018; Reed, Dougill, & Taylor, 2007; Tengö et al., 2017).

To increase local landowner's participation and long-term engagement in voluntary conservation, future policies in the area should offer a diverse set of incentives to account for heterogeneous needs (Selinske et al., 2017). Here, we suggest a set of potential policy instruments aiming to foster landowners' stewardship and to help address some of the locally perceived problems (Figure 3). Providing access to remote secondary education programmes (e.g. through the use of information and communication technologies; Acosta et al., 2011) and building capacity (e.g. through trainings and workshops) might help bridge the urban–rural gap in education opportunities and mitigate rural exodus (Deotti & Estruch, 2016; Li et al., 2019). In addition, since people are increasingly leaving the rural area, strengthening already existing local participation platforms (e.g. Rural Development Boards where landowners meet to discuss about local problems; Cruz et al., 2018) might help enhance landowners networks. This is important since social-cohesion and collaboration grounded in rurality (e.g. exchange of diverse knowledge, skills and resources) can facilitate adaptation to emerging socio-ecological disruptions (Leap & Thompson, 2018). Moreover, technical assistance from interdisciplinary teams (e.g. agronomists and conservationists working together) might inform landowners on how to address land management challenges (e.g. increasing shrubland and forest encroachment; Garibotto Carton et al., 2017). Technical assistance can also contribute to improve grazing management to maximize beneficial contributions from nature (e.g. increase native grasslands resilience to extreme climatic events such as severe droughts; Modernel et al., 2019). In addition, financial incentives, such as cost-share programmes, can provide landowners with economic support to cover part of the costs of implementing conservation actions on their lands (Casey et al., 2006). Financial support might be targeted to costs related to improving infrastructure (e.g. building new fences for rotational grazing and temporary cattle exclusions on native grasslands), protecting riparian buffer areas or controlling invasive species (Kilgore & Blinn, 2004; Ma, Butler, Kittredge, & Catanzaro, 2012; Vecchio, Bolaños, Golluscio, & Rodríguez, 2019). Finally, recognizing current management practices that contribute to biodiversity conservation and sustainable production could help foster landowners' stewardship while increasing economic benefits (Disselhoff, 2015; Enqvist et al., 2018). For example, certification schemes for sustainable beef production would help landowners to access high-quality markets and increase profits (Modernel et al., 2016). However, future long-term success of conservation outcomes strongly depends on designing legitimate institutional arrangements (e.g. new partnerships between governments, private sector and nongovernmental organizations) to plan, implement and monitor voluntary conservation policies (Clement, Moore, Lockwood, & Mitchell, 2015; de Vente et al., 2016; Gooden & 't Sas-Rolfes, 2020; Lambin & Thorlakson, 2018; Rissman, Owley, L'Roe, Morris, & Wardropper, 2017; Selinske et al., 2019).

To conclude, our results showed that biodiversity conservation goals in this cultural landscape cannot be pursued in isolation from social and rural development goals (Hanks, 1984; Mikulcak, Newig, Milcu, Hartel, & Fischer, 2013) and need to consider already existing local environmental stewardship. Overall, while there is a global growing tendency to increase landowners' engagement in conservation by providing financial incentives (Cortés-Capano et al., 2019), policies relying mainly on these instruments might marginalize other motivations for environmental stewardship and increase the programmes dependency on external financial inputs (e.g. Chapin & Knapp, 2015; Cooke & Corbo-Perkins, 2018; Selinske et al., 2017; Yasué & Kirkpatrick, 2018; Yasué, Kirkpatrick, Davison, & Gilfedder, 2019). In turn, strengthening existing links between people

and nature and addressing local needs could confer both social and conservation benefits in a fair and sustainable way. Since this area has been nationally and internationally recognized as a priority for biodiversity and cultural conservation (BirdLife International, 2019; Di Minin et al., 2017; UNESCO, 2015), traditional management practices in place by local landowners should be respected as part of 'Other effective area-based conservation measures'. Specifically, these areas are 'a geographically defined space, not recognized as a protected area, which is governed and managed over the long-term in ways that deliver the effective in-situ conservation of biodiversity, with associated ecosystem services and cultural and spiritual values' (IUCN-World Commission on Protected Areas Task Force, 2019; Mitchell et al., 2018). Hence, supporting and reporting these areas as OECM could potentially increase their long-term contribution to biodiversity conservation while also help achieve conservation targets at the national level (Di Minin et al., 2017). Although we are aware that our results are context-dependent (i.e. low transferability; Moon et al., 2016), we believe our approach and lessons learned can provide insights to inform actionable research (Beier et al., 2017) in other cultural landscapes globally.

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CONFLICT OF INTEREST

Nothing to declare.

AUTHORS' CONTRIBUTIONS

G.C.-C. conceived the central idea and coordinated the research team; G.C.-C. with the contribution of G.G.-C., A.F. and C.D. designed the methodology; G.C.-C., G.G.-C., A.F. and C.D. collected the data; G.C.-C., G.G.-C. and A.F. analysed the data; E.D.M. and T.T. provided insights to frame the manuscript; G.C.-C. and E.D.M. led the writing of the manuscript; E.D.M. prepared the map in Figure 1; T.T. and A.S. provided critical comments to the drafts. All authors gave final approval for publication.

DATA AVAILABILITY STATEMENT

All data used in this manuscript are present in the manuscript. Reports in Spanish, prepared as a result of the project 'Conservación voluntaria de la naturaleza en Uruguay: perspectivas de productores rurales de las Quebradas del Norte' supported by the Uruguayan Ministry of Housing, Land Planning and Environment project URU/13/G35, can be provided upon request to the corresponding author, and with permission of all parties involved with the research.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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